Observations of Wolf's Periodical Comet (b 1891) made at the Royal Observatory, Greenwich.

(Communicated by the Astronomer Royal.)

The observations were made with the East, or Sheepshanks, Equatoreal, aperture 6·7 inches, by taking transits over two cross wires at right angles to each other, and each inclined 45° to the parallel of declination. Magnifying power about 200 on October 2, 3, 4, and 55 on October 9, 12, and 14.

Greenwich Mean Solar Time.	Observer.	☄—✶ R.A.	Corr. for Parallax.	Corr. for Refraction.	☄—✶ N.P.D.	Corr. for Parallax.	Corr. for Refraction.	No. of Comps.	Apparent R.A.	Tabular R.A.	Apparent N.P.D.	Tabular N.P.D.	Comp. Star.
d h m s		m s	s	s	′ ″	″	″		h m s	h m s	° ′ ″	° ′	
Oct. 2 11 8 41	T.	+0 37·0	−0·4	0·0	−13 23·2	−7·3	−0·3	1		4 28 13		76 41·7	a
11 17 13	,,	+2 49·9	−0·4	0·0	−10 39·0	−7·3	−0·1	6	4 28 16·4	4 28 13	76 42 11·6	76 41·7	b
11 23 38	,,	+2 1·3	−0·4	0·0	−7 7·2	−7·2	0·0	4		4 28 14		76 41·8	c
3 11 30 36	A.C.	−0 13·6	−0·4	0·0	+2 25·7	−7·3	0·0	4		4 29 20		77 11·7	d
11 33 56	,,	+1 39·5	−0·4	0·0	+13 31·0	−7·2	+0·2	3	4 29 20·5	4 29 20	77 11 44·2	77 11·8	e
4 10 41 47	H.	−1 41·9	−0·4	0·0	−1 20·5	−7·6	0·0	6	4 30 23·8	4 30 21	77 40 50·1	77 40·7	f
10 53 33	,,	−0 57·6	−0·4	0·0	−2 44·9	−7·5	0·0	3		4 30 21		77 40·9	g
9 11 27 34	T.	+5 19·0	−0·4	0·0	+13 40·2	−7·6	+0·3	2	4 34 57·0	4 34 56	80 16 32·8	80 16·2	h
11 27 34	,,	+5 14·5	−0·4	0·0	+13 3·3	−7·6	+0·3	2	4 34 56·1	4 34 56	80 16 28·8	80 16·2	k
12 10 42 46	H.	+1 48·0	−0·4	0·0	−3 55·1	−8·0	−0·1	6	4 37 7·2	4 37 3	81 51 32·0	81 51·2	l
10 51 16	,,	+1 26·1	−0·4	0·0	−0 35·3	−8·0	0·0	2		4 37 4		81 51·4	m
11 6 8	,,	−0 34·1	−0·4	0·0	−3 29·8	−7·9	0·0	2		4 37 4		81 51·7	n
14 11 10 35	L.	+1 17·3	−0·4	0·0	+14 30·6	−8·0	+0·4	2	4 38 19·6	4 38 16	82 56 58·9	82 56·6	o
11 10 35	,,	+0 33·6	−0·4	0·0	+12 55·7	−8·0	+0·3	2		4 38 16		82 56·6	p

Assumed Mean Places of Comparison Stars.

	Star's Name.	R.A. 1891·0 h m s	N.P.D. 1891·0 ° ' "	Authority.
a	Anonymous			
b	W.B. (I) IV. 482	4 25 24·63	76 53 10·9	Weisse's Bessel (I)
c	B.D. +13°, 694	4 26 13	76 51	Bonn Observations, vol. iii.
d	Anonymous			
e	W.B. (I) IV. 531	4 27 39·27	76 58 50·6	Weisse's Bessel (I), with proper motion, −0"·27 in N.P.D., deduced from comparison with Armagh Catalogue I. and Sj.
f	90 Tauri	4 32 3·86	77 42 31·1	Greenwich 10-Year Catalogue, 1880.
g	B.D. +12°, 616	4 31 20	77 44	Bonn Observations, vol. iii.
h	Armagh, I. 980	4 29 36·01	80 3 13·7	Armagh Catalogue, 1840; R.A. from Weisse's Bessel (I)
k	88 Tauri	4 29 39·67	80 3 46·6	Armagh Catalogue, 1840
l	W.B. (I) IV. 725	4 35 17·12	81 55 49·3	Weisse's Bessel (I)
m	B.D. +8°, 737	4 35 40	81 54	Bonn Observations, vol. iii.
n	B.D. +7°, 700	4 37 43	81 56	Bonn Observations, vol. iii.
o	W.B. (I) IV. 760	4 37 0·28	82 42 50·9	Weisse's Bessel (I)
p	B.D. +7°, 701	4 37 42	82 44	Bonn Observations, vol. iii.

Star e was observed with the Transit Circle on November 7, and a preliminary reduction gives R.A. 1891·0 $4^h\ 27^m\ 39^s\cdot83$, N.P.D. 1891·0 76° 58' 41"·5. The observations are corrected for refraction and parallax; in computing the latter log Δ has been taken from Berberich's Ephemeris, the values used being: October 2, 9·9310, October 3, 9·9287, October 4, 9·9268, October 9, 9·9177, October 12, 9·9127, October 14, 9·9097. The tabular places given are also interpolated from Berberich's Ephemeris.

The initials T., L., H., A.C., are those of Mr. Thackeray, Mr. Lewis, Mr. Hollis, and Mr. Crommelin respectively.

On the Orbit of Spitaler's Comet (VII. 1890).
By Lieut.-General Tennant, C.I.E., R.E., F.R.S.

In No. 3010 of the *Ast. Nach.*, Professor Spitaler expressed an opinion that at its last passage through its descending node this comet passed so near *Jupiter* that its orbit must have been entirely changed. Since then Dr. Hind has made a communication to the Academy of Sciences at Paris, pointing out that the best orbit of the comet did not justify this conclusion.

Soon after seeing Professor Spitaler's remark, I collected such information as was available about the comet, and resolved to examine the question. As an American orbit differed very sensibly from that used by Spitaler, I computed a fresh one from the Vienna Observations of 1890 November 16 and December 13, and that made at the Lick Observatory on 1891 January 12.

From these I deduced the following elements :—

Perihelion passage 1890 October $26 \cdot 11874 = 2^h \, 56^m \, 59^s$ G.M.T.

$$\left.\begin{array}{l} \pi = 58 \; 15 \; 31\cdot23 \\ \Omega = 45 \; 08 \; 01\cdot32 \\ \iota = 12 \; 51 \; 27\cdot69 \end{array}\right\} \text{Equinox of } 1891\cdot0$$

$$\phi = 28 \; 12 \; 45\cdot58$$

$$\left.\begin{array}{l} \mu = \quad\; 554\cdot2197 \\ \log a = \quad 0\cdot5375498 \end{array}\right\} \text{Period} = 2338^d\cdot46 = 6\cdot4022 \text{ years}$$

Comparing these with the whole of the observations I could find, the result was a very general agreement, showing that the accuracy was far greater than usual in comet observations. The observation at Lick on 1890 December 11 was found to have the time too late by two hours, and this correction was kindly verified by the observer, Mr. Barnard. The whole number of observations was very small, but I deduced the following errors of the Ephemeris founded on the above elements :—

Paris M.T.	$\Delta\alpha \cos\delta$	$\Delta\delta$
1890 Nov. 16·644	$+1''\cdot1$	$-0''\cdot7$
Dec. 6·247	$-1\cdot5$	$-0\cdot3$
Dec. 10·558	$-1\cdot1$	$-3\cdot2$
Jan. 8·074	$-4\cdot5$	$+2\cdot2$
Jan. 12·131	$+0\cdot1$	$-1\cdot0$

On forming equations of condition for correcting the elements referred to the equator, it was evident, as might have been expected, that a change of π could be almost entirely compensated by one of the time of Perihelion Passage; and so, that a change in the Major Axis would be compensated by one in the eccentricity. After making the equations homologous, I adopted the following plan :—